

USSR

KLIMCHUK, V. I.

"Heavy Gyroscope with Variable Parameters on a Mobile Base"

Tr. Seminara po matem. fiz i nelineyn. kolebaniyam. In-t matem. AN USSR
(Works of the Seminar on Mathematical Physics and Nonlinear Oscillations.
Institute of Mathematics of the Ukrainian SSR Academy of Sciences), 1969
(1970), vyp. 3, pp 169-174 (from RZh-Mekhanika, No 11, Nov 70, Abstract
No 11A94)

Translation: This article contains a study in the first approximation of the problem of the movement of a gyroscope with slowly varying moments of inertia on a Cardan joint under the following conditions: the center of gravity is shifted "slightly" along the spin axis; the base completes "small" two-dimensional oscillations, and it vibrates according to a harmonic law along a constant direction making a given angle with the stationary vertical axis; the kinetic moment of the rotor varies according to an exponential law. Expressions are obtained for drift around both axes of the Cardan joint. It is demonstrated that variation of the moments of inertia can eliminate the drift caused by nutation oscillations; however, in the case of an unbalanced rotor it can intensify the loss of stability of the gyroscope axis.

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Public Health, Hygiene and Sanitation

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UDC 613.632:632.934]:(631.37:629.13

DEREVYANKO, L. D., and KLIMENKO, A. A., All Union Scientific Research Institute for the Agricultural and Special Use of Civil Aviation, Krasnodar

"Hygienic Evaluation of Working Conditions During Aerial Spraying of Methylmercaptophos"

Moscow, Gigiyena i Sanitariya, No 7, Jul 70, pp 101-102

Translation: The extensive use of aviation to control crop and forest pests and diseases, undesirable vegetation, and vectors of infectious diseases makes it necessary to take steps to protect the health of those engaged in this work. The working conditions of those handling methylmercaptophos on An-2 planes were studied in June and July 1967 in Tashkent'skaya Oblast, Uzbek SSR. The tanks were invariably filled with the chemical manually. Air was sampled for its methylmercaptophos content in the cockpit while the pilot was engaged in various operations: during flight to the designated plot, at the time of spraying, and while filling the tank (with ventilation on and off). The average concentration of the compound under these conditions ranged from 0.137 to 0.871 mg/m³. The air temperature in the cockpit ranged from 17 to 40.4°C and the relative humidity from 19 to 81% at atmospheric air temperatures of 14.4 to 35°C and relative humidities

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DEREVYANKO, L. D., et al, Gigiyena i Sanitariya, No 7, Jul 70, pp 101-102

of 37 to 90%. The highest temperature inside the cockpit was 35°C at an atmospheric air temperature of 31°C. Thus, the uncomfortable microclimatic conditions together with the high methylmercaptophos content are unfavorable for the crew. In addition, the plane is quite noisy and creates vibrations. Cardiovascular reactions and heat regulation were studied in pilots during exposure to the above unfavorable factors. Aviation technicians and mechanics, who are exposed to the chemicals to a lesser degree, served as a control group. The temperature and humidity at which they work match the climate of the surrounding locality and they are exposed to vibration and noise only briefly. The investigation showed that the temperature on various parts of the skin in both pilots and mechanics at the end of the flights significantly increased in direct proportion to the rise in air temperature around the work places. The skin temperature was somewhat higher in pilots than in mechanics. A comparison of the results of our studies with literature data (G. Kh. Shakhbazyan, 1947; D. A. Biryukov, 1959) showed that pilots and mechanics are uncomfortably warm by the end of the flight. The elevated temperature of the skin of the extremities, which under favorable conditions is the main source of heat emission is particularly unfavorable. Arterial pressure and pulse rate were also investigated in the same workers. By the end of the

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DEREVYANKO, L. D., et al, Gigiyena i Sanitariya, No 7, Jul 70, pp 101-102

workday, both systolic and diastolic pressures were high, and the increase in diastolic pressure was statistically significant. Also statistically significant was the drop in pulse pressure at the end of the day against the background of a rapid pulse. It was more pronounced in the pilots. All these findings indicate cardiovascular strain associated with aerial spraying in Uzbekistan. The absence of a hypotensive effect, as noted in the literature, despite the high temperatures and exposure to organophosphorus compounds (Yu. S. Kagan, 1963; Kh. Z. Lyubetskiy et al., 1961; and others), seems to have been due to the predominance of the nervous-emotional factor, which resulted from the numerous take-offs and landings (30 to 40) and speed of flight (150 to 160 km/hour) at low heights (about 5 m above the ground). Noise also helps to raise arterial pressure (V. S. Volkov, 1966). Hypotension in fliers and mechanics engaged in aerial spraying in Uzbekistan was observed during quarterly medical check-ups (L. D. Derevyanko, 1967). This is not inconsistent with the above findings, because during the examination the individuals are in a situation free from nervous and emotional stress, noise, and vibration. The working conditions of those engaged in aerial spraying can be improved by preventing the chemicals from entering the cockpit (through installation of a ventilation system that guarantees air pressure in the cockpit of 15 to 20 mm H₂O) and by creating a comfortable microclimate there.

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KLIMENKO, A.G.

JPLS 59268

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XIII-4. NEW METHOD OF OBTAINING MONOCRYSTALLINE LAYERS OF SILICON ON NONORIENTING SUBSTRATES

[illegible]

A new procedure has been developed for connecting monocrystalline plates of silicon to nonconducting substrates (ceramic) via an intermediate layer of solid solution (Ge + Si). The characteristic features of the process of the processes and its difference from soldering and plating consists in the fact that the transient layer (the solid solution of germanium with silicon) is monocrystalline, it has electrophysical and chemical properties close to the properties of the connected plate of silicon. The crystallization begins with the surface of the monocrystalline silicon plate and develops in the direction of the nonorienting substrates. This insures the monocrystalline nature of the transient layer of solid solution with respect to its entire thickness. The silicon layers obtained in this way on the nonorienting substrates without the usually used chemical, thermal and mechanical (etching, polishing, cooling, and heating from liquid helium) to ordinary diffusion temperatures in Si treatment. The estimates made demonstrated that the transient layer can have a thickness on the order of several microns. Thicknesses of the solid solution (Ge + Si) of 6-8 microns could be obtained experimentally. It was established that obviously the displacement density in the silicon itself arises from the difference in coefficients of thermal expansion of the substrate and the silicon. The silicon layers were obtained on substrates of the ceramic with a displacement density of $5.105 \cdot 10^5 \text{ cm}^{-2}$. On the basis of the experiments performed, the heating and cooling rate conditions of the layers were selected which do not lead to a noticeable variation of their electrical properties. Monocrystalline layers of silicon were obtained with a specific resistance to $1,500 \text{ ohm-cm}$ and electron mobility to $1,500 \text{ cm}^2/\text{per second}$ at room temperature. For all of the specimens, the particular scattering of the carriers and the substance of deep level are characteristic.

1/2 018 UNCLASSIFIED PROCESSING DATE--16GCT70
TITLE--TYROXINE EFFECT ON NUCLEIC ACID AND PROTEIN CONTENT IN NUCLEI OF
ALBINO RATS LIVER CELLS -U-
AUTHOR--KLIMENKO, A.I.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 281-286
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--THYROXINE, NUCLEIC ACID, PROTEIN, WHITE RAT, LIVER, RNA, DNA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0263 STEP NO--UR/0301/70/016/003/0281/0286
CIRC ACCESSION NO--AP0120953
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120953

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS SHOWN THAT AFTER 1. M. INJECTIONS OF THYROXINE DURING 6 DAYS INTO WHITE RATS 1, 3, 12 AND 24 MONTHS OLD THE CHANGES IN RNA, DNA CONTENT AND IN TOTAL AND NONHYSTONE TYPES OF PROTEINS AND VARIOUS FRACTIONS OF HYSTONES WERE NOTED. THESE CHANGES WERE CHARACTERISTIC FOR EACH GROUP OF ANIMALS. RNA CONCENTRATION AND CONTENT IN NUCLEI WERE APPRECIABLY INCREASED AS COMPARED TO THE CONTROL LEVEL. THE SAME PICTURE TOOK PLACE FOR P RNA DIVIDED BY P DNA RATION. THESE RESULTS ARE DISCUSSED IN CONNECTION WITH POSSIBLE STIMULATORY ACTION OF TYROXINE ON NUCLEIC ACID SYNTHESIS BY MEANS OF ITS EFFECT ON GENETIC LEVEL. FACILITY: INSTITUTE OF BIOLOGY, STATE A. M. GORKY UNIVERSITY, KHARKOV.

UNCLASSIFIED

USSR

UDC 532.529

GVOZDEV, V. D., and KLIMENKO, A. I.

"Concerning the Question of Heat Transfer in a Vacuum-Evaporated Vibroboiling Layer"

Ivanovo, Gidrodinamika, Teplo- i Massoobmen v Psevdozhizh. Sloye -- Sbornik (Hydrodynamics, Heat and Mass Exchange in a Pseudoliquefied Layer -- Collection of Works), 1971, pp 39-45 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B953 by V. A. Kernerman)

Translation: Results of measurements of the coefficient of heat transfer from a vertical cylindrical heater to a vibroboiling layer, carried out at atmospheric pressure (760 mm Hg) and in a vacuum (0.05 mm Hg) in a hermetic apparatus 150 mm in diameter and 250 mm high, show that in a vacuum-evaporated layer the coefficients of heat transfer are considerably smaller (by a factor of 4-5) than at atmospheric pressure, and practically do not depend upon the particle size (within the interval of 0.75-1.75 mm). Measurement of the temperature profile with respect to the layer showed that the basic temperature drop takes place at a distance of about 1 mm from the heater surface. Under vacuum conditions the temperature gradient at the wall is higher than at atmospheric pressure; this points to the important role of the filtration component of the gas phase in the boiling layer. Seventeen references

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GAVRILKO, V. I., GERASIMENKO, R. T., KALASHNIKOV, V. I., KLIMENKO, A. N.

"Input of Analog Information to the M-220 Computer"

Vychisl. Mat. i Vychisl. Tekhn. [Computational Mathematics and Computer Equipment -- Collection of Works], No 2, Khar'kov, 1971, pp 151-156, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V704 by the author's).

Translation: An automatic system for input of analog information to a digital computer is described. The characteristics of the apparatus are presented. The operating mode of the M-220 in the complex and the method of writing of program for information input are described. A method is indicated for accounting for the instability of the rate of movement of the magnetic tape during input.

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USSR

UDC: 539.216.22:546.289

KLIMENKO, A. P., MATVEYEVA, L. A., TKHORIK, Yu. A., CHERNAYA, N. S., Institute of Semiconductors, Academy of Sciences of the UkrSSR

"Investigation of Vacuum Condensates of Germanium on Insulating Substrates"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika, Resp. Mezhved. Sb., No 7, 1972, pp 41-47

Abstract: A comprehensive study is made of the electric (conductivity and Hall effect over a broad temperature range), optical (infrared spectrum in the 5-15 μ region and the natural absorption edge), surface (stationary and impulse field effects) and structural properties of germanium films on semi-insulating gallium arsenide and ferroelectric $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$. An investigation is made of the influence which certain technological factors, the thickness of the film and the type of substrate have on its above mentioned properties. The authors discuss the possibility of existence of an impurity band formed by deep acceptor levels in germanium films.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PRESSURE TEMPERATURE DIAGRAMS OF AQUEOUS CALCIUM AND LITHIUM
SOLUTIONS -U-
AUTHOR--(031)-KLIMENKO, A.P., MOGILNYI, V.I., KRYUKOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--CHIM. IND., GENIE CHIM. 1970, 103(5), 591-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CALCIUM CHLORIDE, LITHIUM COMPOUND, PRESSURE EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0945 STEP NO--FR/0000/70/103/005/0591/0593
CIRC ACCESSION NO--AP0133031
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133031

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VAPOR PRESSURES WERE DETD. FOR AQ. CACL SUB2 AND AQ. LICL AS A FUNCTION OF TEMP. (218-300DEGREESK FOR AQ. CACL SUB2; AND 210-320DEGREESK FOR AQ. LICL) AND SOLUTE CONCN. (0-60PERCENT). THE CALCD. WATER CONTENTS IN A GAS DRIED AT 250DEGREESK AND 25 KG-CM PRIME2 WITH PRECOOLED AQ. CACL SUB2 AND AQ. LICL WERE 4 AND 2 PPM, RESP. A FLOW DIAGRAM FOR GAS DRYING FRACTIONATING SYSTEM WITH AQ. CHLORIDE SOLNS. IS GIVEN. FACILITY: GASENINST., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.396.6-181.5

KLIMENKO, A. S., SAVAT'YEV, V. A.

"Calculating the Diffusion of Moisture Through a Monolithic Single-Layer Plastic Integrated Circuit Housing"

Elektron. tekhnika. Nauchn-tekhn. sb. Mikroelektronika ((Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 1(27), pp 70-73 (from RZh-Radiotekhnika, No 8, Aug 71, Abstract No 8V233)

Translation: The author considers a physical model of a single-layer polymer integrated microcircuit housing and its mathematical analog. Using the overall level of diffusion, a solution is found which defines the diffusion of moisture vapor into the housing. A generalized graph is given for the moisture protecting characteristic of a single-layer polymer housing, and an example of calculating its wall thickness is presented. Resumé.

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USSR

UDC: 536.532

AMETISTOV, YE. V. KLIMENKO, A. V. and PAVLOV, YU. M.

"Method of Embedding Thermocouples Into the Surface of Experimental Metal Areas for Nonstationary Temperature Measurement"

Tr. Mosk. energ. in-ta (Transactions of Moscow Power Institute)
1972, vyp 104, pp 15-19 (from Referativnyy Zhurnal-Metrologiya i
Izmeritel'naya Tekhnika, No 8, 1972, Abstract No 8.32.868 by V.S.K.)

Translation: When investigating the local temperature variations of metal heating surface under a growing bubble of steam, it should be taken into account that the time of steam bubble growth is measured in milliseconds and its diameter does not exceed several millimeters. The basic problem in conducting such measurements is the need to create special, sufficiently reliable temperature pickups. Two newly developed methods are described of embedding 5-10 copper-constantan thermocouples with reliable silicon-organic insulation into the surface of experimental areas of about 40 mm diameter, practically any thickness and 3-4 mm length.

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AMETISTOV, Ye. V., et al., Tr. Mosk. energ. in-ta, 1972, vyp 104, pp 15-19

In order to assure reliability of contact silver coating about 100-200 Å thick is deposited by vacuum dust-blasting on the ends of microelectrodes and on the surface of the experimental area. It is pointed out that the use of such small-diameter electrodes requires individual calibration of thermocouples (1 illustration, 4 references).

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Composite Materials

USSR

UDC 542.65:532.526.7

KOLESNICHENKO, L. F., POPCHENKO, YU. A., KLIMENKO, A. V., and ZABOLOTNYY, L. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Use of Composite Materials in Mobile Joints"

Kiev, Poroshkavaya Metallurgiya, No. 9, Sep 70, pp 27-33

Abstract: Modern concepts of friction and wear are based on phenomena caused by the initiation and advancement of plastic processes in the contact zone and their interrelation with the effects of the operating medium. Space technology applications have made necessary extensive studies in overcoming the low effects of certain lubricants in vacuum. The creation of a composite surface by dispersing particles of a stable phase in a plastic matrix designed to preclude plastic flow and failure through friction, is an important step in overcoming the low efficiency of some

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KOLESNICHENKO, L. F., et al, Poroshkavaya Metallurgiya, No. 9, Sep 70,
pp 27-33

materials under specific conditions. Most promising, however, are combination materials which, unlike composite materials, are characterized by a macroscopic combined structure; they comprise two large groups: matrix-type combination materials and laminated systems of combination materials consisting of individual layers or layered components. To facilitate selection of components for combination materials of special designation, experimental data on antifriction properties and wear resistance for individual materials both in air and in vacuum are cited in a table. Applying a coat of any material cited in this table to the working surface of a steel specimen will change the friction parameters. The shortcoming of such modifications in the surface layer is the short-term work capacity of the friction joint under conditions featuring antifriction. Figures in the original article show the effect of layer orientation on the coefficient of friction and wear due to changes in pressure.

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KLIMENKO, EA.

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XII-6. NEW METHOD OF OBTAINING MONOCRYSTALLINE LAYERS OF SILICON ON NONORIENTING SUBSTRATES

Article by E. A. Klimenko, A. G. Klimenko, A. V. Kichinov, B. Sh. Izrael'mov, L. M. Alexandrov, Novosibirsk, 111 Sibirskiy po Pecheniam Nosta 1 Sibirskaya Poluprovodnikovaya Kristalliny 1 Pioner, Nizhny, 12-17 June 1977, p. 1951

A new procedure has been developed for connecting monocrystalline plates of silicon to monocrystalline substrates (ceramic) via an intermediate layer of solid solutions (Ge + Si). The characteristic feature of the process of the process and its difference from soldering and plating consists in the fact that the transient layer (the solid solution of germanium with silicon) is monocrystalline. It has electrophysical and chemical properties close to the properties of the monocrystalline silicon plate and develops in the direction of the monocrystalline substrate. This involves the monocrystalline nature of the transient layer of solid solution with respect to its entire thickness. The silicon layers obtained in this way on the monocrystalline substrates withstand the usually used chemical, thermal and mechanical (etching, polishing, cooling and heating from liquid helium to ordinary diffusion temperatures in Si) treatment. The authors made demonstrated that the transient layer can have a thickness on the order of several microns. Thicknesses of the solid solution (Ge + Si) of 6-8 microns could be obtained experimentally. It was established that obviously, the dislocation density in the silicon itself arising from the difference in coefficients of thermal expansion of the substrate and the silicon. The silicon layers were obtained on substrates of multiple ceramic with a dislocation density of $5 \cdot 10^4 - 1 \cdot 10^5 \text{ cm}^{-2}$. On the basis of the experiments performed, the heating and cooling rate conditions of the layers were selected which do not lead to a noticeable variation of their electrical properties. Monocrystalline layers of silicon were obtained with a specific resistance to $1,500 \text{ ohm-cm}$ and electron mobility to $1,500 \text{ cm}^2/\text{V-sec}$ at room temperature. For all of the specimens, the particular scattering of the carriers and the absence of deep levels are characteristic.

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6.73

1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FORCE COOLED SUPERCONDUCTING SYSTEMS -U-
AUTHOR-(04)-KEILIN, V.E., KLIMENKO, E.YU., KOVALEV, I.A., SAMOILOV, B.N.
COUNTRY OF INFO--USSR
SOURCE--CRYOGENICS 1970, 10(3), 224-32
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SUPERCONDUCTING MAGNET, CRYOGENIC LIQUID COOLING, CURRENT
DENSITY, PRESSURE EFFECT, TRANSITION TEMPERATURE, FLUID FLOW, CRYOGENIC
PUMP
CENTRCL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1204 STEP NO--UK/0000/70/010/003/0224/0232
CIRC ACCESSION NO--AP0124858
UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124858

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WITH A SUPERCONDUCTING COIL (60 MM INSIDE DIAM., 160 MM OUTSIDE DIAM., AND 230 MM LONG) WITH FORCED CIRCULATION OF LIQ. HE SHOWED THAT UNDER FORCED CIRCULATION THE SUPERCOND. WAS DESTROYED AT A COIL CURRENT OF SIMILAR TO 500 A, CORRESPONDING TO A FIELD OF SIMILAR TO 15 KOE. HOWEVER, WITH THE COIL IMMERSED IN LIQ. HE, THE SUPERCOND. WAS DESTROYED AT 600-700 A. THE COOLING CAPACITY OF HE INCREASED WITH DECREASING PRESSURE, AND WITH DECREASING DIFFERENCE BETWEEN THE CRIT. TEMP. OF THE SUPERCONDUCTOR (10.2DEGREESK) AND HE TEMP. FORCED COOLED SUPERCONDUCTING SYSTEMS ARE COMPARED WITH TRADITIONAL "POOL" SYSTEMS. A MODEL FOR DETG. THE STABILITY CRITERIA FOR SUPERCONDUCTING CURRENT IS PROPOSED. FACILITY: I. V. KURCHATOV AT. ENERGY INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.15:541.66

DOLZHENKOV, I. Ye., KLIMENKO, G. P., VERBOLOZ, V. D., RUBAN, A. A.,
KOVALYUK, V. V., and PROKOPENKO, V. Ye.

"Effect of Tempering and Self-Tempering on the Mechanical Properties of
Thermally Hardened Carbon Filaments from Low-Carbon Steel"

Metallurgicheskaya i Gornorudnaya Promyshlennost', No 2, 1971, pp 26-27

Abstract: Carbon filaments 75 x 75 x 8 mm from open-hearth steel were hardened by tempering and self-tempering (i.e. a last discontinuous cooling) using electro-contact heating. Completely hardened filaments were tempered in an electrical shaft furnace from 100 to 650°C at 50° intervals for periods of 0.5 to 1.5 hours and cooled after treatment in air. The results of stability and microstructure studies confirmed previous results and indicated no change in properties after hardening by tempering or self-tempering at the same temperature and times. Changing the length of the processing time from 0.5 to 1.5 hours did not appear to affect the mechanical properties. Thermally processed filaments have a lower cold brittleness temperature. Even at -60°C the impact strength of improved steel was at the level of 15-20 kg/cm². The most stable values of impact strength at test temperatures from +20 to -60°C were obtained after hardening and tempering at 400-500°C.

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Acc. Nr:

AP0045912

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

LR 3643

KLIMENKO I.A.

[A70-22469 # Strength and durability problems involved in the designing and exploitation of limited-production energy engines with a long service time (Zadachi o prochnosti i dolgovechnosti, vznikaiushchie pri razrabotke i ekspluatatsii maloseriinykh energomashin bol'shogo resursa). I. D. Dorofeev, I. A. Klimenko, and V. I. Nikolaev. *Problemy Prochnosti*, vol. 2, Jan. 1970, p. 86-90. 6 refs. In Russian.

Analysis of the designing and exploitation processes of a gas turbine blade. Topics discussed include: (1) long-time strength of the EI617 alloy in different media, (2) fatigue strength of the same alloy at 750 C in different media, (3) static durability of the notched and smooth samples at 850 C, and (4) effect of a cyclic loading and heating on the long-time strength at 800 C. Z.W.

ALS.

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REEL/FRAME
19780957

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USSR

UDC 677.494.72

SLATINA, S. D., KIRILENKO, Yu. K., VOL'F, L. A., MEOS, A. I., KLIMENKO, I. B.,
GRACHEV, V. I., VISHNYAKOVA, T. P., and VLASOVA, I. D., Leningrad Institute
of the Textile and Light Industries imeni S. M. Kirov, and Moscow Institute
of the Petrochemical and Gas Industries imeni I. M. Gubkin

"Polyvinyl Fabrics Modified With Ferrocene-Containing Compounds"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLV, No 2, Feb 1972, pp 446-447

Abstract: Heteroorganic compounds are already widely used as modifiers of chemical fibers, and specific methods are known for imparting desired properties to fibers by the use of silicon- and boron-containing compounds. However, the use of ferrocene-containing compounds in this way has not been described, although these compounds impart a number of valuable properties to polymers, notably resistance to heat and radiation. Ferrocene-containing compounds are of further interest in having possible biological effects, including an effect on blood-formation. Polyvinyl alcohol (PVA) fiber was treated with 1,1-diacetylferrocene-formaldehyde (DAFF) resin, obtained by condensation polymerization with formaldehyde in the presence of Na_2CO_3 in ethanol. The freshly formed fiber was submerged for 1-5 minutes in 5-20% solutions of the resin, then heated at 140-180° for 10-20 minutes.

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SLATINA, S. D., Zhurnal Prikladnoy Khimii, Vol XLV, No 2, Feb 1972, pp 446-447

The fiber became resistant to the effect of hot water. Apparently, in the fiber-resin reaction there was condensation of the PVA hydroxyl groups with the resin methyl groups, so that simple ester bonds were formed between the two polymers; this was confirmed by comparison of the number of hydroxyl groups in the initial fiber, the resin-processed fiber, and the heated resin, and also by infrared data. Graphic data accompany the paper.

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Acc. Nr:

AP0049792

Abstracting Service:

CHEMICAL ABST. 5-70 K

Ref. Code:

UR 0753

101747r Modification of poly(vinyl chloride) fibers by alkyl-chlorosilanes. Vol'f, L. A.; Besprozvannykh, A.; Pedlesskaya, N. K.; Klimenko, I. B.; Shelkunov, N. G.; Grachev, V. I. (USSR). *Khim. Volokna* 1970, (1), 76-7 (Russ). Poly(vinyl chloride) (I) fibers were given water repellency by dehydrochlorination in the presence of FeCl_3 or diazoaminobenzene (II) catalyst followed by treating with Me_2SiCl (III), Me_2SiCl_2 (IV), or MeSiCl_3 (V) to give modified I having increasing Si content with increasing double bond content and amt. of Cl in the silanes. I fibers were dehydrochlorinated in the free state with 6% II and alc. by heating 18-20 hr at 90-100° or in the fixed state at 130° for 10-18 hr with II or 0.5-1 hr with 20% FeCl_3 soln. After removing from the catalyst bath (with bath ratio 40) and drying to 3-7% catalyst add-on, the fibers were impregnated with the silanes, e.g. with a bath contg. 2-10% V (bath ratio 30) for 10-15 min at 20°; heated in air 2-5 hr at 90-130°; extd. for 1 day with benzene, and washed 5 times with H_2O or 1.5 times with steam to give I with 0.2-2% Si. Si content increased with increasing silane concn. in the bath, temp., and length of treatment. Although V gave the highest Si content, V gave the best water repellency as detd. by contact angle measurements. Si addn. to I was by Si-O-C bonds as well as by Si-C bonds. BCJR

REEL/FRAME

19801714

Acc. Nr.

AP0048801

Abstracting Service:
CHEMICAL ABST.

Ref. Code

UR0080

K⁵⁻⁷⁰

90947c Ir-spectroscopic studies of a vinyl alcohol-N-vinylpyrrolidinone copolymer. Savitskaya, A. N.; Klimenko, I. B.; Efremova, T. B.; Vol'f, L. A.; Meos, A. I. (USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 213-14 (Russ). A study of the ir spectra of poly(vinyl alc.), poly(N-vinylpyrrolidinone), and the title copolymer (I) indicated that some lactam rings are opened during synthesis of I. Thus, an intense band at 1570 cm^{-1} in the spectrum of I was assigned to RCO_2^- , arising via cleavage of the lactam rings. This assignment was confirmed by potentiometric titrn. DBJR

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REEL/FRAME

19800564

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1/2 046 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--POSSIBILITY OF STUDYING POLYMER STRENGTH BY MEANS OF POLARIZATION
INFRARED SPECTROSCOPY -U-
AUTHOR--(04)-SAVITSKAYA, A.N., KLIMENKO, I.B., VOLF, I.A., ANDROSOV, V.F.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 790-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--TENSILE STRENGTH, PLASTIC FILM, ACTIVATION ENERGY, OPTIC
PROPERTY, POLYVINYL ALCOHOL, PYRROLIDINE, KETONE, COPOLYMER, CHEMICAL
DECOMPOSITION, PLASTIC DEGRADATION, IR SPECTRUM, SPECTROSCOPIC ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1255 STEP NO--UR/0459/70/012/004/0790/0793
CIRC ACCESSION NO--AP0134929
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134929

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DICHROISM OF THE BAND AT 916 CM PRIME NEGATIVE1 PLOTTED VS. ORIENTED DRAWING FOR POLYMER FILMS INDICATED THAT POLY(VINYL ALC.) (I) AND I POLY(VINYLPYRROLIDINONE) MIXTS. HAD A SIMILAR DICHORISM, WHEREAS VINYL ALC. N VINYL PYRROLIDINONE COPOLYMER (II) HAD A SLIGHTLY LOWER VALUE. THE ACTIVATION ENERGY OF DEGRADATION WAS ESSENTIALLY THE SAME FOR THE 3 POLYMERS, WHILE THE STRUCTURE SENSITIVE COEFF. OF II WAS MARKEDLY HIGHER THAN THAT OF I. THE TENSILE STRENGTH OF THE POLYMERS CAN BE QUAL. EVALUATED FROM THE DICHROISM OF THE CORRESPONDING BANDS. FACILITY: LENINGRAD. INST. TEKST. LEGKOI PROM. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

AA0052675- KLIMENKO IM UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 2-70

243167 GANTRY CRANE WITH PROGRAMME CONTROL e.g.
for use in stores, has load trolley
carrying a vertically-moving traverse with load
grips. The traverse has guide rollers on either
side, moves in slots in brackets fixed to the
load carriage. This prevents the load deviating
from the vertical while being lowered. Gantry
1 rests via legs 2 and 3 on trolleys 4 and 5.
Load trolley 6 carries traverse 7 with vacuum
grips 8. On traverse 7 is vacuum receiver 9.
The traverse has guide rollers 10 moving in slots
11. On trolley 6 are mechanisms for moving the
trolley, raising and lowering the traverse, and
a vacuum pump, covered by casing 12. The crane-
moving mechanism is under casing 13. The drives
of these mechanisms are supplied via suspended
cable 14. Control mechanism is in box 15. There
is a hand control panel for emergencies. To

19821439

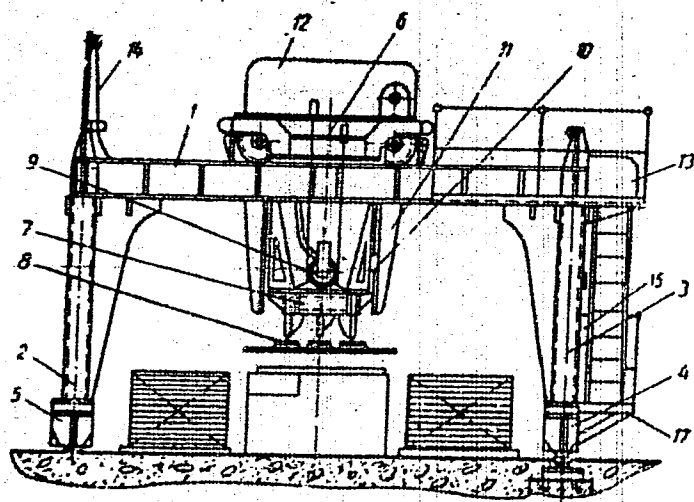
AA0052675

operate under programme control, the operator selects on the control panel the number of the position where the load is to be lowered, and presses the "start" button. The crane then moves to the required position, picks up the load, returns and lays it in the working position.
10.4.67. as 1148575/27-11, KLIMENKO, I.M. et al
(26.9.69) Bul. 16/5.5.69. Class 35b, Int. Cl. B 66c.

Klimenko, I. M.; Kulygin, V. V.; Lavrov, A. A.; Vigont, R. P.

2/3
19821440

AA0052675



19821441

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CERTAIN FEATURES OF HOLOGRAMS OF FOCUSED IMAGES -U-
AUTHOR-(02)-KLIMENKO, I.S., MATINYAN, YE.G.
COUNTRY OF INFO--USSR
SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 18, MAR. 1970, P. 556-560
DATE PUBLISHED----MAR70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--HOLOGRAPHY, OPTIC IMAGE, ILLUMINATION, WAVE FRONT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1564 STEP NO--UR/0051/70/028/000/0556/0560
CIRC ACCESSION NO--AP0118547
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE SPECIAL FEATURES OF WAVEFRONT RECONSTRUCTION WITH THE AID OF HOLOGRAMS OF FOCUSED IMAGES ILLUMINATED BY WHITE LIGHT. IT IS SHOWN THAT THE POSSIBILITY OF IMAGE RECONSTRUCTION IN WHITE LIGHT IS GOVERNED BY THE FACT THAT DURING A CHANGE IN THE WAVELENGTH OF THE RECONSTRUCTING RADIATION THE IMAGE SCALE AND THE LOCALIZATION PLANE REMAIN UNCHANGED. A STUDY IS MADE OF THE EFFECT OF THE DEGREE OF SPATIAL COHERENCE OF THE RECORDING RADIATION ON THE CONDITIONS OF RECONSTRUCTING IN WHITE LIGHT SPECTRALLY COLORED AND SINGLE COLOR IMAGES.

UNCLASSIFIED

Composite Materials

USSR

UDC 669.71:669.24.27.28

2

KARPINOS, D. M., TUCHINSKIY, L. I., VISHNYAKOV, L. R., PERESENTSEVA, L. N.,
KLIMENKO, L. N., and DEYMONTOVICH, V. B., Kiev

"Effect of Alloying a Nickel Matrix With Reinforcing Metal Fibers on the
Structural Stability of Ni-W and Ni-Mo Composites"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 107-113

Abstract: The problem of creating structurally stable composites for the
Ni-W and Ni-Mo system was examined. By alloying the nickel matrix with
tungsten up to the maximum saturation of the nickel solid solution, rein-
forced tungsten fibers were obtained in which the fibers did not dissolve at
1000-1200°C. At these temperatures the Ni-Mo composite was not so stable
because an intermetallic compound is formed at the fiber-matrix interface
and the maximum saturation of the nickel matrix with molybdenum does not
prevent dissolution of the molybdenum fibers. Four figures, 2 tables, and
8 bibliographic references.

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AA0051894

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

237436 ORGANIC MATERIALS SLIDING FRICTION INTENSITY
measuring device, consisting of a frame (1),

d.c. motor (2), handle (3) for continuous drive speed control, jacket (4), pipe connector (5) for coolant supply, disc (6), specimen holder (7) with a traverse (8) with vertical grooves (9), a ground plunger (10) with a rectangular platform for weights at its top, two springy elements (11) carrying strain gauges, a supporting plate (12), tachogenerator (13), flexible shaft (14), nut (15), cutter holder (16), thermometer sleeve (17) and a pipe connector (18) for the coolant discharge.

The electric motor (2) with the disc (6) mounted on its shaft, can vary its speed from 0 to 8000 rpm. The speed is controlled by a tap changing switch on a selenium rectifier in the power pack, and by the handle (3). The coolant is projected by a jet directly under the point of contact of the friction pair. The ribs on the

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11

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19820373

USSR

UDC 621.762:621.771

CHEKMAREV, A. P., MUSIKHIN, A. M., KLIMENKO, P. I., and LEBEDIK, G. L.,
Dnepropetrovsk Metallurgical Institute; Institute of Problems of Material
Science, Academy of Sciences Ukrainian SSR

"Using Sheet Mills for Rolling Metal Powders"

Kiev, Poroshkovaya metallurgiya, No 2, Feb 72, pp 91-93

Abstract: The objective of this study was the potential use of conventional roll mills for high-speed rolling of metal powders. The experiment involved a 330 mill with a roll diameter of 394 mm and PZh-1M grade of metal powder with a bulk weight of 2.32 and shake-down weight of 2.80 g/cm³. The mill was equipped with a force-feed mechanism. The measurements included: a) the stresses at the contact surface of the metal powder with the roll; b) rolling torque; c) rpm of both the work rolls and the worm roll. The diagram of the force feed mechanism is shown. The study indicates that conventional roll mills are well suited for rolling metal powder into sheets and tape at roll speeds of 2 m/sec and higher on condition that the roll mills are equipped with force feed systems. (2 illustrations, 1 table, 6 biblio, references)

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USSR

UDC: 632.95

KHARCHENKO, V. G., KUPRANETS, N. M., POLIKARPOVA, N. V., KRUPINA, T. I., and
KLIMENKO, S. K., Saratov Polytechnical Institute

"A Method for Preparing Tetrahydrothiochromyl or symm-Octahydrothioxanthanyl
Chlorides"

USSR Author's Certificate No 255292, filed 19 Mar 68, published 8 Apr 70
(from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N674 P by G. V. Kuznetsova)

Translation: These substances, which can be used as physiologically active compounds, are obtained from the reaction of semi- or bicyclic 1,5-diketones with H_2S and HCl in an $AcOH$ medium. A solution of 13.4 g of 1-phenyl-3-(n-methoxyphenyl)-3-(2-cyclohexanonyl)-propanone-1 in 45 ml of glacial $AcOH$ is saturated with H_2S (1 hour) and then with a mixture of H_2S and HCl gas (3 hours) and H_2S (1 hour). 6 g (about 45%) of 2-phenyl-2-mercaptol-4-(n-methoxyphenyl)-heptahydrothiochromene is filtered off from the reaction mass. The filtrate is diluted with 300 ml of dry ether, the sediment filtered off, washed with ether and benzene, producing 3.3 g (about 20%) hydrochloride of 2-phenyl-4-(n-methoxyphenyl)-5,6,7,8-tetrahydrothiochromyl chloride, $C_{22}H_{22}Cl_2OS$, melting

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USSR

KHARCHENKO, V. G., et al., USSR Author's Certificate No 258292, filed 19 Mar 68, published 8 Apr 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N674 P by G. V. Kuznetsova)

point 111-4°; perchlorate of chloride, $C_{10}H_{10}ClO_4S$, melting point 169-71°. Symm-Octahydrothioxanthenyl chloride (I), $C_{22}H_{17}ClS$, is prepared from methylenedicyclohexanone under similar conditions, yield 50%, melting point 95-7° (chloroform-ether). The corresponding iodide, $C_{13}H_{11}IS$, is obtained from the action of 45% HI in ether on I, melting point 153.5-6°. 9-Benzyl-symm-octahydrothioxanthene is obtained from the reaction of I with $PhCH_2MgCl$, yield 41%, melting point 107-9°. The hydrochloride of 9-methyl-symm-octahydrothioxanthenyl chloride, $C_{14}H_{20}Cl_2S$, is obtained under these conditions from ethylenedicyclohexanone with a yield of 40%, melting point 155-6° (chloroform-ether). It is converted by the action of HI into the corresponding iodide, $C_{14}H_{19}IS$, melting point 143-5°.

2/2

USSR

UDC 576.858.25.083.35.086.3

GUSHCHIN, B. V., TSILINSKIY, Ya. Ya., SHUSHKOV, L. S., L'VOV, D. K., and KLIMENKO, S. M., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Electron Microscopic Investigations of Vero Cells Infected With Genetically Homogenous and Heterogenous Venezuelan Equine Encephalitis Virus (VEE)"

Moscow, Voprosy Virusologii, No 4, 1973, pp 436-438

Abstract: Vero cells grown in medium 199 with 10% normal bovine serum were infected with clones 6 and 8 of VEE either separately, or with both clones at the same time. Electron microscopy of thin sections showed that 17 and 23 h after infection either with clone 6 or 8 alone mononucleoid virions were formed, whereas infection with both clones simultaneously yielded mononucleoid virions as well as giant virions containing several nucleoids (polynucleoid virions). After 29 and 41 h an additional type of giant viral particle was formed which contained material equal in density to that of the nucleoids (termed giant viral particles in distinction to polynucleoid virions) in cultures infected with both clones. Cells infected with only one type of VEE clone did not form giant viral particles. The data support the contention that formation of giant virions represents infection of the cells with genetically heterogenous VEE virus.

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USSR

UDC 576.858.095.383, 576.895.771

RAYKOVA, A. P., KLIMENKO, S. M., KOSTYRKO, I. N., GROMASHEVSKIY, V. L.,
and L'VOV, D. K., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, Moscow

"An Investigation of the Ability of Sumah Virus From the Uukuniemi Group
to Proliferate in Aedes Aegypti Mosquitoes"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 731-735

Abstract: A. aegypti mosquitoes experimentally infected with Sumah virus
(added to nutrient suspension) were investigated by electron microscopy
and titrations on mice for 2 months. The results revealed a regular re-
production of the virus in the mosquitoes. The virus is present in the
cytoplasm, the intercellular spaces in the epithelial tissues, and salivary
gland ducts of the mosquitoes from the 11th day after infection, but trans-
mission by bite occurs only when the virus concentration is at least 2.5×10^5
per 0.01 ml of mosquito tissue. Virus particles have an oval shape,
with the long axis 900-1000 A and the short axis 700-800 A long, and they
have a two-layer membrane which is 90-100 A thick.

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USSR

UDC 576.858.25

TSILINSKIY, Ya. Ya., GUSHCHIN, B. V., KLIMENKO, S. M., and L'VOV, D. K.,
Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences
USSR

"Relationship Between the Biological Properties of Venezuelan Equine Encephalomyelitis Virus and Virus Particle Size"

Moscow, Voprosy Virusologii, No 5, 1971, pp 573-576

Abstract: Natural genotypes of Venezuelan equine encephalomyelitis virus exhibited a correlation between the size of the virus particles and the size of the plaques, the size of the viruses evidently affecting plaque size because particles of different sizes diffused through agar at different rates. Hence clones with small virus particles formed larger plaques than did clones with large virus particles. The thermostability of the virus, its pathogenicity for white mice, and capacity for replication at 40°C were independent of the size of the virus particles. Clones with relatively small or medium-sized virus particles combined the capacity for autointerference in chick fibroblast cultures with sensitivity to inhibition by agar polysaccharides. These patterns did not apply to the temperature mutants of VEE virus. They formed small or very small plaques, although

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USSR

TSILINSKIY, Ya. Ya., et al., Voprosy Virusologii, No 5, 1971, pp 573-576

they were characterized by small virus particles. Apparently the size of the plaques in these mutants, which are incapable of replicating at 40°C and are nonpathogenic for white mice, is determined not by the rate of diffusion of the virus particles in agar but by some other factors. 5-Fluorouracil treatment caused the large-plaque and thermostable variant of VEE virus to mutate toward smaller plaque size and inability to withstand heating to 60°C.

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1/2 010
UNCLASSIFIED
PROCESSING DATE--18SEP70
TITLE--THE EFFECT OF PINOCYANOLE OF T SUB2 AND C SUBD BACTERIOPHAGES -U-
AUTHOR--(03)-VELIKODVORSKAYA, G.A., GUSHCHIN, B.V., KLIMENKO, S.M.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 204-207
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BACTERIOPHAGE, BIOLOGIC STRAIN, BACTERIAL DEOXYRIBONUCLEIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0734
STEP NO--UR/0402/70/000/002/0204/0207
CIRC ACCESSION NO--AP0108940
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0108940

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERACTION OF A STAIN OF THE CYANINE SERIES, PINOCYANOLE, WITH T SUB2 AND C SUBD BACTERIOPHAGES WAS STUDIED. PNC WAS FOUND TO PENETRATE WELL THROUGH THE ENVELOPE OF INTACT PHAGE PARTICLES AND TO INTERACT WITH INTRAPHAGE DNA. MORPHOLOGICAL CHANGES OF PHAGES WERE VERY SLIGHT. THE INFECTIOUS ACTIVITY OF C SUBD PHAGE UNDER THE INFLUENCE OF PNC WAS REDUCED BY 35PERCENT, THAT OF T SUB2 PHAGE BY 25PERCENT.

UNCLASSIFIED

Molecular Biology

USSR

UDC 616.988.25-092.4-07:616-008.939.633.2-092.18-07

ZHDANOV, V. M., GAVRILOV, V. I., KLIMENKO, S. M., BOGOMOLOVA, N. N., and
ANIZHAPARIDZE, O. G., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, and Institute of Viral Preparations, Ministry of Public
Health USSR, Moscow

"Chronic Infection of Cell Cultures by Tick-Borne Encephalitis Virus: Ribonu-
cleoprotein Structures in Cells"

Moscow, Voprosy Virusologii, No 1, 1973, pp 17-23

Abstract: Labeled RNA precursors were added to HEp-2-Sof cell cultures
chronically infected with tick-borne encephalitis virus, in which cellular RNA
synthesis was suppressed antibiotically, to determine the location and nature
of viral products. Virus-specific ribonucleoprotein was found to concentrate
in mitochondrial membrane fractions. Two forms with 160S and 140S sedimenta-
tion constants were detected by sucrose gradient analysis. Densities were
1.33 and 1.42 gm/ml respectively in cesium chloride gradients. Electron micro-
scope investigation indicated that the structures were threads 2.4-2.9 microns
long, and 50 Å and 30-40 Å wide respectively. Threads of intermediate sizes
were also detected. These data suggest that these are viral genomes. It is

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ZHDANOV, V. M., et al., Voprosy Virusologii, No 1, 1973, pp 17-23

concluded that chronically infected host cells inhibit production of mature virions but have less effect on genomes. What supports viral persistence and which structures make possible infection of newly divided cells remains unanswered.

2/2

- 45 -

USSR

UDC 621.398

PEHENICHNIKOV, A.M., DMITRIYEV, V.F., KHAZATSKIY, V.E., Candidates of Technical Sciences, and KLIMENKO, V.I., Engineer

"New Telemechanical Systems for Constructing Information and Control Systems"

Moscow, Pribory i Sistemy Upravleniya, No 12, Dec 70, pp 1-3

Abstract: Two series of telemechanical systems have been developed under the leadership of TsNIIKA [State All-Union Central Scientific Research Institute of Complex Automation] to transmit data and commands among physically separated facilities: the Nart-67 series and APD series. Nart-67's serve continuous-output control systems; APD's, discrete output.

In the Nart-67 series the TM-100, serving relatively slow processes (dispatcher control of pipelines, gasfields, irrigation systems), connects a control post with up to 20 check points. Transmitting speed is 50 bauds. Two parameters are sent per second in cyclic telemetry. Telesignalization lag when an installation's status changes does not exceed 25 seconds. Remote control commands are sent in 4 seconds. Range is up to 2,000 km. Basic telemetry error equals 1.6 percent. Probability of receiving a false message is 10^{-8} ; a command, 10^{-12} . The TM-100 is made at the ZTA [Telemechanical Apparatus Plant] at Nal'chik.

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USSR

PSHENICHNIKOV, A.M., et al., Moscow, Pribory i Sistemy Upravleniya, No 12, Dec 1970, pp 1-3

The TM-300, serving intensive industries, such as mining, metallurgy, and chemicals, connects a control post with up to 25 check points over two-wire line at distances up to 220 km. Telemetry transmission speed is 25 parameters per second; telesignalization is sent in 0.6 second, remote control commands in 0.3 second; basic telemetry error is 1.6 percent for digital, 2.5 percent for analog data. The TM-300 is produced at the ZTA.

The TM-500, which provides a higher degree of dispatcher control to power associations at unlimited range, connects the control post with check points by high-frequency multiplexing. Time for sending telemetry and telesignalization at 50 bauds is 4 seconds, or 0.7 second at 300 bauds. Switching to a backup channel is automatic. The TM-500 prototype was made under the code name "Stimul" at the TsNIIKA Experimental Plant. Many Stimul sets are used in the power system to good economic effect.

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USSR

PSHENICHNIKOV, A.M., et al., Moscow, Pribory i Sistemy Upravleniya, No 12, Dec 70, pp 1-3

The TM-200 (Rayon), developed at the Automation Institute (Kiev), provides regional dispatcher control of pipelines, irrigation systems, and municipal services.

The TM-600 (Nefte), which serves dispersed gasfields, was developed by research and planning institutes which specialize in complex automation of the petroleum and gas industries.

APD equipment comprises four groups, each meeting a different type of need.

With the first APD series, discrete production data is collected in departments or shops and transmitted, preferably by keyboard, to a post where it is concentrated and given initial processing. Data transmitting speed can vary from 3 to 7 characters per second. Data is sent over nonmultiplexed wire lines at distances up to 15 km. Validity ordinarily is no greater than 10^{-5} per character.

With the second APD series, automatically prepared data is sent from point of initial collection and processing over telephone or telegraph lines to the

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USSR

PSHENICHNIKOV, A.M., et al., Moscow, Pribory i Sistemy Upravleniya, No 12,
Dec 70, pp 1-3

computing centers of large combines, dispensing with the need for small, ineffective computing centers. Transmitting speed is 5-8 characters per second by telegraph, 15-25 or 80-120 by telephone line. Either commutated or noncommutated lines can be used. The data should go directly into the computer or, in case of computer outage, onto punched tape. Validity of not less than 10^{-6} per character is required.

The third APD group exchanges data among computing centers, allowing better use of the computer pool and raising reliability. Two types of equipment can be involved, depending on the amount of machine time spent on raising reliability. Speeds of 100-140 or more characters per second and validity of not less than 10^{-7} per character are required.

The fourth APD group, intended for mass servicing (such as automated sales of train or plane tickets, data-handbook service), works with a computer in real time on a question-and-answer mode, using either telephone or telegraph lines. Validity is similar to that of the second APD group.

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USSR

PSHENICHNIKOV, A.M., et al., Moscow, Pribory i Sistemy Upravleniya, No 12, Dec 70, pp 1-3

The APD-MM, for example, belonging to the third APD group, connects BESM-4 computers. "Shuffling" with steps equal to word length reduces the machine time required to raise validity (no more than 2 percent). The Hamming Code is used to detect and correct errors.

The APD-3M is intended for radial communication with computers where data volume is small. Transmission speed is 30-120 characters per second, modulation speed is 1200/600 bauds. Validity is 10^{-6} per character where message distortion probability is 10^{-3} . It has decision feedback.

The APD-1U, intended for mass servicing, works in real time in a question-and-answer mode and has decision feedback characterized by identical speeds in a semiduplex channel. Message protection is provided, ensuring validity of 10^{-7} per character. Speed is 1200/600 or 50/75 bauds.

5/5

USSR

UDC: 621.771.23:539.37.001.4

FILIPPOV, E. L., and KLIMENKO, V. M., Donetsk Polytechnic Institute

"Studying Stresses During Rolling of High Flat Products in Smooth Rollers"

Moscow, Izvestiya Vysshykh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 4, 1973, pp 105-108

Abstract: The authors produced and rolled specially designed, composite, wedge shaped, lead specimens under laboratory conditions in order to verify the analytically obtained formulas for determining stresses which arise at the seat of deformation during the rolling of high flat products (ingots). The experimental data are in agreement with the calculations. The developed design of the composite lead specimen, which excludes the effect of external zones on the deformation of the central axial part of the upper level of the flat product, made it possible to obtain interesting data on the manifestation of upper level compression deformation along the cross section of the specimen.

1/1

USSR

UDC: 612.826+612.822.3

KLIMENKO, V. M. and KAPLUNOVSKIY, A. S., Division of General Pathology (Headed by P. N. Veselkin) and Division of Ecological Physiology (Headed by N. N. Vasilevskiy), Institute of Experimental Medicine of the USSR Academy of Medical Sciences, Leningrad

"Statistical Investigation of the Pulsed Activity of Neurons of Different Parts of the Hypothalamus"

Leningrad, Fiziologicheskiy zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1484-1493

Abstract: The authors find that the most promising method of investigating central mechanisms for providing the various reactions occurring in the organism in the normal and pathological states is on the cellular level, on the basis of an analysis of neuron pulse activity. In their experiments for this investigation, they chose 22 rabbits weighing from 2.8 to 3.0 kg, and introduced polyethylene catheters into the femoral vein and urinary bladder of the animals after narcotizing them with intravenous hexanal; the first catheter was used to introduce tubocurarin, while the second served as a free drain for urine flow during the experiment. The

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USSR

KLIMENKO, V. M., et al., Fiziologicheskiy zhurnal SSSR im. I. M. Sechenova,
No 10, vol 58, 1972, pp 1484-1493

arch of the skull was opened for connection to stereotaxic equipment, and the hypothalamus was reached through trepanning. In all, 391 hypothalamic neurons were investigated and their activity analyzed. It was found that the overwhelming majority of the neurons had a mixed type of activity in which packets, groups, and single pulses combined. It was also found that in extended time intervals of as much as 30 minutes, the average pulsation frequency level of the neurons did not vary.

2/2

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USSR:

UDC 621.762.01(088.8)

BRONDZYA, YE. V., KLIMENKO, V. N., MASLYUK, V. A., Radomysel'SKIY, I. D.,
Institute of Problems in Materials Science, Academy of Sciences Ukrainian SSR

"P/M Alloy"

USSR Authors' Certificate No 273437, Cl. 40b, 29/00; 80b, 1/04; 40b, 1/04
(d 04b 35/56, C 22c 1/04, C22c 29/00), filed 24 Mar 69, published 21 Sep 70
(from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G402P)

Translation: A chromium carbide-base, nickel-containing P/M alloy is suggested.
In order to lower sintering temperature, P is put into it, and components
are taken in the following ratio (in wt.%): Ni 5-40, P 0.2-1.5, Cr carbide the
rest.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USING CARBIDECHROMIUM ALLOYS FOR MAKING DIE CASTING MOLDS IN THE
PRODUCTION OF BARIUM FERRITES -U-
AUTHOR-(04)-BELIK, I.T., KLIMENKO, V.N., MASLYUK, V.A., RADOMYSELSKIY,
I.D.
COUNTRY OF INFO--USSR
SOURCE--KIEV, TEKHNLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP
86-87
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DIE CASTING, BARIUM FERRITE, ANISTROPY, CHROMIUM ALLOY,
CARBIDE, MOLD MATERIAL, FOUNDRY CORE/CHROMIUM CARBIDE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1339

STEP NO--UR/0418/70/000/001/0086/0087

CIRC ACCESSION NO--AP0123297

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123297

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TECHNOLOGICAL REGIMES ARE DEVELOPED FOR SINTERING AND MOLDING LARGE DIES AND CORES OF DIE CASTING MOLDS MADE FROM KKHN-15 ALLOY FOR MAKING ANISOTROPIC BARIUM FERRITES. THE STABILITY OF DIE CASTING MOLDS EQUIPPED WITH FEMALE DIES MADE FROM KKHN-15 CARBIDECHROMIUM ALLOY IS 40-50 TIMES HIGHER THAN FOR MOLDS MADE FROM STEEL.

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO---AP0119031

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL OF THE COMPN. R18 (HIGH W CONTENT), OBTAINED BY HOT EXTRUSION, WAS STUDIED. THE INFLUENCE WAS STUDIED OF THE HOLDING PERIOD AT THE ANNEALING TEMP. ON THE AMT. OF CARBIDE ISOLATED DURING TEMPERING. THE D. OF THE EXTRUDED SMAPLES WAS 8.76 G-CM PRIME3, WHICH PRACTICALLY COINCIDES WITH THE D. OF STD. HIGH SPEED STEEL. THE MICROSTRUCTURE OF THE QUENCHED AND TEMPERED METALLOCEMIC STEEL CONSISTS OF HIGH ALLOYED MARTENSITE (WITH A MICROHARDNESS OF 700-800 KG-MM PRIME2), RESIDUAL AUSTENITE (WITH A MICROHARDNESS OF 320-400 KG-MM PRIME2), AND THE CARBIDES. INCREASING THE HOLDING TIME DURING QUENCHING ENHANCES THE SEGREGATION OF THE SECONDARY CARBIDES, MAKES THE MARTENSITIC MATRIX LESS ALLOYED. AND IMPROVES ITS ETCHABILITY. FACILITY: INST. PROBL. MATERIALOVED., KIEV, USSR.

UNCLASSIFIED

USSR

KLIMENKO, V. P., SAVCHAK, O. N.

"Realization of the Dialogue Mode in the Mir-2 Computer"

Konstruirovaniye i vnedreniye novykh sredstv vychisl. tekhn. T. 1
[Design and Introduction of New Computer Equipment. Volume 1 -- Collec-
tion of Works], Kiev, 1971, pp 61-64 (Translated from Referativnyy Zhurnal
- Kibernetika, No 8, 1973, Abstract No 8 V638 by V. Ostrovskiy)

Translation: A brief description is presented of a language designed to support dialogue between the user the Mir-2 computer, allowing operational interference in the process of problem solving in order to introduce changes to initial data or to the program. The computer and user exchange portions of information in sequence. User messages are in the form of statements, which the computer may answer by all available information output devices. Two types of statements are allowed: informative (declarative statement) and directive (imperative statement). The machine records the information produced and formulates a description of the objects or operators of the input language. Directives can be used to indicate the sequence of operators to be performed (stored in advance or contained in the directives). In contrast to informatives, all information relating to a certain directive

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USSR

KLIMENKO, V. P., SAVCHAK, O. N., Konstruirovaniye i vnedreniye novykh sredstv vychisl. tkehn. T. 1, Kiev, 1971, pp 61-64

is eliminated after the directive is performed. The language suggested contains informatives of three types and seven varieties of directives.

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USSR

GRINCHENKO, T. A., DORODNITSYNA, A. A., KLIMENKO, V. P., FISHMAN, Yu. S.

"The MIR-2 System of Computer Analytic Transforms"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 21-25 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V647, by the authors).

Translation: Certain functional peculiarities of the MIR-2 system of analytic transforms and principles of its machine realization are presented.

USSR

UDC 536.2.023

KARPINOS, D. M., KONDRAT'YEV, YU. V., KLIMENKO, V. S., BARANTSEVA, I. G., PILIPOVSKIY, YU. L., DOBROVOL'SKIY, O. A., and SHAMATOV, YU. M., Institute of Problems of Material Science, Academy of Sciences, Ukrainian SSR

"Physical Properties of Hot-Extruded W-Cu Pseudoalloy"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 20, No 1, Jan 71, pp 96-99

Abstract: A study was made of a number of physical properties of W-Cu pseudoalloys in a wide range of temperatures: thermal conductivity from 370 to 2200°K, electrical conductivity from 300 to 1970°K, and thermal expansion from 300 to 870 and 1370 to 2200°K. The investigated alloys contained 8-9 wt% Cu.

Results showed that the thermal and electrical conductivities of W-Cu pseudoalloys exceed those of tungsten. The higher conductivity is caused by the effect of copper, where both conductivities in the solid state are 2.5-3 times greater than for tungsten. The sharper lowering of thermal and electrical conductivity

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USSR

KARPINOS, D. M., et al., Inzhenerno-Fizicheskiy Zhurnal,
Vol 20, No 1, Jan 71, pp 96-99

of the pseudoalloys, observed at temperatures above the melting point of copper, is caused partially by a decrease of copper conductivity due to its transition to the liquid state. At temperature above the melting point of copper the pseudoalloy is depleted of copper, and after the high temperature tests the Cu content did not exceed 2-3%.

Values for the coefficient of thermal expansion (CTE) of the pseudoalloys exceed those for tungsten. This attributed to the presence of a significant amount of copper in the samples. As in conductivity tests, at temperatures close to 2200°K the copper melts and flows from the tungsten skeleton, thus reducing the copper content and resulting in an alloy with a thermal expansion close to that of tungsten.

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TECHNOLOGY OF PRODUCING NEW MATERIALS

JPNS 59875

23 August 1973

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Translation of Russian-language collection: Tekhnologiya
Polucheniya Novykh Materialov, 1972, Kiev.

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[1 - USSR - 1]

KLIMENKO V.S.

USSR

UDC: 621.315.592

KORSUNSKIY, M.I., VOLCHEK, A.D., and KLIMENKO, V.V.

"Quantum Output in the Long-Lasting Trapping of Carriers as a Function of the Spectrum"

Alma-Ata, Izvestiya AN KazSSR, Seriya Fiziko-Matematicheskaya, No 6, 1970, pp 45-49

Abstract: The quantity β' , representing the quantum output, is a function of the photoelectric energy $h\nu$, where h is Planck's constant and ν the frequency of the incident radiation. The purpose of this paper is to define precisely the function $\beta'(\nu)$ and thus to establish the relative position of the energy level for a long-lasting trap and for amorphous selenium. By calculating various values for β'_0 from the equation

$$\beta'_0(\nu) = \beta'(\nu) / \beta'(\nu_0),$$

where β'_0 is the relative value of the quantum output and ν_0 is a standard frequency, the authors plot the common logarithm of β'_0 as a function of ν . They conclude that there are two channels through which the carrier can enter the trap: by tunneling through the barrier at the level of the conducting zone floor; by tunneling through the barrier at the energy level E_c , the nature of which is not known but is quantitatively indicated in a diagram accompanying the article.

USSR

KORSUNSKIY, M. I. and KLIMENKO, V. V.

"Effect of the Parameters of the U-Center Potential Function on the Semiconductivity of Amorphous Selenium Films"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 3, 1973, pp 710-714

Abstract: A U-center is defined here as a macroscopic formation capable of capturing minority current carriers. These centers and their characteristics determine the nature of the photoconductivity of amorphous selenium films activated by mercury. The purpose of this theoretical work is to explain the boundary conditions of the U-center parameters at which anomalous and negative types of photoconductivity make their appearance. A table of these parameters is given which shows that anomalous photoconductivity is possible only if the specimen has U-centers whose potential function has certain parameters; the potential function is defined as the potential "trench" surrounding the barrier. The authors conducted calculations of the parameters at which negative photoconductivity is possible; the calculations were made for temperatures of 100 and 300°K. Curves defining the regions of the U-center parameters at which the two types of photoconductivity appear are plotted.

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USSR

UDC 539.37.376

ANDRIYEVSKIY, R. A., SPIVAK, I. I., and KLIMENKO, V. Y.

"Manifestation of Superplasticity in Refractory Compounds"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 6, 1972, pp 1279-1281

Abstract: The authors studied the possibility of the manifestation of superplasticity in two-phase composites based on refractory compounds. The systems VC-ZrC, VC-HfC and TiC-ZrC were selected for this purpose. Specimens were prepared by hot forming with subsequent annealing at 2500° C; porosity of the VC-ZrC, VC-HfC, TiC-ZrC composites was respectively 1.5-3, 8-15, 4-6 percent; the testing procedure consisted in studying bend creep. The results indicate that many of the regularities found in studying the superplasticity of metallic alloys (nonlinear relation between creep rate and σ , the manifestation of superplasticity in two-phase alloys whose phase volumes are equidimensional, and the size of inclusions amounting to several microns) are also observed in the case of carbide composites.

The authors thank K. L. CHEVASHEVA for her help in the work.

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USSR :

KIJMENKO V. V., GUMENYUK, N. P.

"The Constancy of Motor Perceptions"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 6, Jun 71, pp 28-31

Abstract: The purpose of this research was to determine some properties of the constancy of perceptions of complex coordinated movements of a ballistic type. The moving act was seen as man's psychological interaction of subject with object; physiological interaction as organism with outside environment; and mechanical: as inert mass displaced in the earth's gravitational field. The physical act selected was a jump upwards (one leg springing one leg moving in upper thrust). The experiment used 14 people, ages 18-25. Six hundred twenty tensograms were registered. Subjects were asked to attempt the highest possible leap; after noticeable decrease of jump height, subjects were asked to continue, but with the aim of the quickest possible leg thrust and subsequent halting of movement in that leg. Data showed that movement system characteristics change over a period of trial, but the subject's perception remains constant. He does not note changes in neuromuscular function and therefore does not correct for them; this cannot be explained on the basis of exhaustion alone. The article concludes that movement perception is

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USSR,

KLIMENKO, V. V., GUMENYUK, N. P., Teoriya i Praktika Fizicheskoy Kul'tury,
No 6, Jun 71, pp 28-31

directly related to intellectual context; with changes in this context, man understands the act of motion differently and perceives it differently. Perception constancy is a factor which facilitates compensation for excess sensory information; when sensory information is inadequate, it supplements distorted perception through the elements resulting from movement effort.

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USSR

UDC 621.315.592

KORSUNSKIY, M. I., Academician of the Academy of Sciences, Kazakh SSR,
VOLCHEK, A. D., KLIMENKO, V. V., Institute of Nuclear Physics, Academy of
Sciences, Kazakh SSR

"The Spectral Dependence of the Quantum Yield for the Process of Casting
Electrons into Y-Centers in Activated Films of Amorphous Selenium"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 565-566

Abstract: The aim of the article is to ascertain whether the values of the probability of penetration of the electron into the Y-center and of the lifetime of an electron excited by a light quantum are functions of the light-quantum energy. It is found that the probability of penetration of the electron into the Y-center and the lifetime of an electron excited by a light quantum either do not change at all with energy, or change very little. Consequently, electrons excited by light quanta with energies greater than 2.2 eV penetrate into the Y-centers through a specific energy level, which apparently is the bottom of the conductivity zone of selenium. One figure, 11 bibliographic entries.

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1/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE TRANSMISSION OF NERVE IMPULSES IN FIBERS OF THE GREATER
SPLANCHNIC NERVE LEADING TO THE CEREBRAL SUBSTANCE OF THE ADRENAL IN
AUTHOR--KLIMENKO, YE.M.

COUNTRY OF INFO--USSR *K*

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 3, PP 7-10
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOELECTRIC PHENOMENON, ADRENAL GLAND, SPLEEN, CAT, GANGLION,
NERVOUS SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0377

STEP NO--UR/0219/70/069/003/0007/0010

CIRC ACCESSION NO--AP0132606

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132606

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING THE INVESTIGATION OF EVOKED BIOELECTRIC ACTIVITY IN THE COMMON TRUNK OF THE GREATER SPLANCHNIC NERVE AND IN BRANCHES LEADING TO THE ADRENAL IN CATS IT WAS ESTABLISHED THAT THE ACTION POTENTIALS IN BRANCHES DIFFER FROM THOSE IN THE COMMON TRUNK OF THE GREATER SPLANCHNIC NERVE BY THE PRESENCE OF SEVERAL COMPONENTS IN THEIR COMPOSITION, BY THE DURATION OF THE POTENTIALS AND THE LATENT PERIOD OF THEIR ORIGIN, AS WELL AS BY THE FREQUENCY CHARACTERISTICS OF THE CONDUCTED IMPULSES. AGAINST THE BACKGROUND OF THE ACTION OF HEXONIUM THE ACTION POTENTIALS IN THE BRANCHES GO TO THE ADRENAL IN THE TOTAL LEAD REDUCED THEIR AMPLITUDE, WHEREAS IN SEVERAL OF THEM WERE SUPPRESSED COMPLETELY. THESE DATA TESTIFY TO THE PRESENCE OF DISRUPTION IN PART OF FIBERS LEADING TO THE ADRENAL IN THE SEMILUNAR GANGLION OF THE SOLAR PLEXUS. FACILITY: I. M. SECHENOV INSTITUTE OF EVOLUTIONAL PHYSIOLOGY AND BIOCHEMISTRY OF THE ACADEMY OF SCIENCES OF THE USSR, LENINGRAD.

UNCLASSIFIED

USSR

UDC 616.9-036.21]:681.3(476)

KARDASH, I. B., KLIMENKO, Ye. P., DROSDOVA-TIKHOMIROVA, A. A., POLIVODA, Z. M., RIJANOVA, F. G., LEFESHINSKAYA, I. V., RYTIK, P. G., and KNYSH, I. N., Ministry of Health Belorussian SSR, Central Institute of Epidemiology of the Ministry of Health USSR, Belorussian Institute of Epidemiology and Microbiology, and Belorussian Republic Sanitary Epidemiological Station

"Experience Gained in the Belorussian SSR During Introduction of a New Epidemiological Investigation Card Adapted for Processing on IBM Computer Minsk-22"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 124-128

Abstract: A new IBM card with a detachable statistical stub, developed for epidemiological investigations at the Central Institute of Epidemiology, was tested in 1968-1970 in a feasibility study conducted throughout the Belorussian Republic. The project was a success not only because the IBM card is useful and convenient but also because the personnel at district and municipal epidemiological stations had received through advance training in how to fill in the cards and code the stubs. A control staff routinely examined the cards and corrected errors detected in a total of 3.1% of the stubs. Procedural improvements were introduced throughout the 3 year period as dictated by expediency. After each quarter-year, the stubs were checked at the local

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USSR

KARDASH, I. B., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 124-128

stations and submitted to the municipal or oblast stations where they were recorded and checked again. Next, they were sent to the Belorussian Institute of Epidemiology and Microbiology for the third check, and from there to the Computer Center of Belorussia's Central Statistical Administration where the data were transferred on perforated tapes and processed on the computer. The method yielded statistical charts with more accurate and detailed information than was ever available in the past. The method was approved by the Ministry of Health USSR and, in 1970, it was introduced on a permanent basis in epidemiological stations throughout the Belorussian SSR.

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1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SPECTROPHOTOMETRIC STUDY OF COMPLEXING IN VANADIUM (IV)
3,4-DIHYDROXYBENZOIC (PROTocatechuic) ACID ANTIPYRINE AND VANADIUM (IV)
AUTHOR--(03)--SHNAYDERMAN, S.YA., KLIMENKO, YE. P., DEMIDOVSKAYA, A.N.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(1), 8-13
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, VANADIUM COMPLEX, BENZOIC ACID,
ORGANIC SOLVENT, DISSOCIATION CONSTANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAme--1992/1991 STEP NO--UR/0073/70/036/001/0008/0013
CIRC ACCESSION NO--AP0112955

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
 CIRC ACCESSION NO--AP0112955
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. V(IV), ANTIPYRENE, AND 1,2,3,4-
 SUB6 H SUB3 (OH) SUB3 FORM 2 COMPLEXES ABSORBING AT 440 AND 630 NM AND
 ARE EXTD. BY C SUB2 H SUB4 CL SUB2 FROM AQ. SOLN. AT PH 4.5-5. THE
 COMPS. OF THESE COMPLEXES ARE 1:1:1 AND 1:2:1, RESP., AND THEIR
 APPARENT MOLAR ABSORPTIVITIES ARE 2200 AND 4200, RESP. V(V),
 ANTIPYRENE(ANT), AND 3,4,6-TRIMETHYLBENZYLIDENE-2-NAPHTHOL (PRIME
 NEGATIVE O) SUB2 NEGATIVE C SUB6 H SUB3 CO SUB2 PRIME NEGATIVE FORM A
 TERNARY COMPLEX WITH PI MAX. 590 NM, ABSORPTIVITY 5500, AND OPTIMUM PH
 FOR EXTN. 3.7. AT THIS PH THE EQUIL. CONST. FOR THE REACTION
 VO((PRIME NEGATIVE O) SUB2 C SUB6 H SUB3 CO SUB2) SUB2 ANT SUB3 IN
 ORG. SOLVENT IN EQUILIBRIUM VO((PRIME NEGATIVE O) SUB2 C SUB6 H
 SUB3 CO SUB2) SUB2 PLUS 3 ANT IN AQ. SOLN. IS 1.3 TIMES 10 PRIME
 NEGATIVE3. THE DISSOCN. CONST. FOR VO((PRIME NEGATIVE O) SUB2 C
 SUB6 H SUB3 CO SUB2) SUB2 IS 2 TIMES 10 PRIME NEGATIVE5.
 FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MIGRATION EQUILIBRIUM OF CESIUM, LITHIUM, AND BARIUM FILMS ADSORBED
AT THE 110 FACE OF TUNGSTEN IN A HETEROGENEOUS ELECTRIC FIELD -U-
AUTHOR--(02)-KLIMENKO, YE.V., NAUMOVETS, A.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1262-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CESIUM, LITHIUM, BARIUM, METAL FILM, SURFACE FILM, TUNGSTEN,
ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1996/0948

STEP NO--UR/0181/70/012/004/1262/1263

CIRC ACCESSION NO--AP0121550

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0121550
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LI, CS, AND BA FILMS WERE
INVESTIGATED ON THE (110) FACE OF W. THE EFFECT OF AN ELEC. FIELD ON
THE ADSORBED FILMS DECREASES WITH INCREASED INITIAL IMPURITY CONC. THE
FIELD EFFECT CHANGES SIGN ON PASSAGE OF THE IMPURITY CONC. THROUGH A
MAX. VALUE. THIS IS EXPLAINED BY THE PASSAGE OF THE POWER OF THE DOUBLE
ELEC. LAYER, WHICH CONSISTS ONLY OF POS. DIPOLES, THROUGH A MAX.
FACILITY: INST. FIZ., KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 530.145

KHUPENKO, Yu. I. and KHUDOMYASOV, A. I., S. M. Kirov Polytechnical Institute, Tomsk

"Induced Radiation of Fermi Particles With Anomalous Magnetic Moments in the Field of Two Electromagnetic Waves"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy--Fizika, No 11, 1972, pp 71-76

Abstract: The generalized Dirac equation describing the motion of a relativistic particle having an anomalous magnetic moment is given. Since this equation has been solved for the electron in the field of a single plane electromagnetic wave in an earlier paper published in the same journal noted above (I. M. Ternov, et al, No 2, 1968, p 50), the authors of the present paper do the same for the electron in two superposed waves, circularly polarized and propagated in the same direction. Still a third electromagnetic wave directed at an angle to the first two but with lesser amplitude is assumed bearing on the electron. Under the effect of this third field, the electron makes some forced transitions that may be accompanied by induced strengthening or weakening of the third

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USSR

UDC: 530.145

KLIMENKO, Yu. I., et al, Izvestiya vysshikh uchebnykh zavedeniy--
Fizika, No 11, 1972, pp 71-76

wave. This wave is assumed quantized and so low in amplitude that it is subject to the method of the theory of perturbations. Formulas are derived to yield a complete solution for the probability and power of the induced radiation for the electron with anomalous magnetic moment, and the case of neutral Fermi particles with the same type of magnetic moment is also investigated. The authors express their gratitude to Professor V. G. Bagrov for his assistance.

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USSR

UDC: 539.12.01

KLIMENKO, Yu. I. and KHALILOV, V. R.

"Induced Radiation of Polarized Electrons in Ions in the Field of a Plane Electromagnetic Wave"

Moscow, Vestnik Moskovskogo Universitet--Fizika, Astronomiya,
No 1, 1972, pp 73-80

Abstract: The problem dealt with in this paper is connected with the development of laser technology in the direction of the interaction of the laser beam with matter, a subject in which there is growing interest. Particularly, the paper is concerned with the scattering of electrons with vacuum magnetic moment at the Coulomb center, in the presence of a strong radiation field. In connection with the anomalous magnetic moment of the electron and the magnetic moment of the center, polarization effects arise which may turn out to be substantial under certain conditions. Exact solutions of the Dirac equation in the field of a plane electromagnetic wave are brought to bear on the problem. The

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KLIMENKO, Yu. I. et al, Vestnik Moskovskogo Universitet --
Fizika, Astronomiya, No 1, 1972, pp 73-80

induced effect can then be described as a process of electron scattering, in the first Born approximation, at the center in the presence of a strong electromagnetic wave. The work was done in the Department of Theoretical Physics.

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USSR

UDC: 539.1.01

BIGROV, V. G., KLIMENKO, YU. I., and PAVLOVA, O. S. (Moscow State University Imeni M. V. Lomonosova)

"Stimulated Emission of Neutral Fermi Particles Moving in a Plane Wave"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy Fizika, No 8, 1970, pp 50-53

Abstract: The authors study the stimulated emission of neutral Fermi particles with an anomalous magnetic moment moving in a powerful electromagnetic wave under the effect of a second electromagnetic wave of lower intensity. It is shown that this type of process can result in a preferred spin orientation of a particle. The authors express thanks to Professor I. M. Ternov for his assistance. Original article: six formulas and two bibliographic entries.

1/1

USSR

UDC: 539.16.04:621.039.512.45

KLIMENKOV, V. I., DVORETSKIY, V. G.

"Experimental Correlation of Data on Bombardment of Graphite in Reactors to Universal Scale of Damaging Fast Neutron Flux"

Moscow, Atomnaya Energiya, Vol 34, No 2, Feb 73, pp 93-96.

Abstract: Calibration experiments were conducted as follows: an ampule containing a specimen of graphite and an activation threshold detector (such as Ni^{58}) was placed in a reactor. Bombardment was performed at the point in the reactor for which correlation was required. The specific activity of the threshold detector was used to determine the equivalent fission neutron flux. The residual radiation increment in resistivity and bombardment temperature of the graphite were then determined. The experimental values agreed quite well with calculated values.

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USSR

UDC 621.039.532.5:621.039.553

CHECHETKINA, Z. I., GOL'TSEV, V. P., KLINENKOV, V. I., VOTINOV, S. N., and TSYKANOV, V. A.

"Behavior of Metallic Beryllium in the SM-2 Reactor"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

Abstract: Metallic beryllium has been used in the SM-2 reactor since 1962 in the system for expelling water from the neutron trap. The expulsion system consists of four inserts placed between the fuel assemblies and the central channel located in the neutron trap. Each insert consists of two blocks. The bottom part of the safety rods is also made of beryllium. In 1964 the reactor design was modified by replacing the beryllium oxide reflector with metallic beryllium. Since then experimental material has been accumulated on the stability of metallic beryllium under SM-2 conditions. The article presents some of the data. Experiments were conducted on specimens cut out of the inserts and safety rods before and after being held in the reactor. The inserts were made of hot-pressed blocks of dis-

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CHICHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

tilled powder beryllium, the safety rods fabricated by hot extrusion from hot-pressed blocks. The investigated parts found in the neutron trap underwent the maximum irradiation. The thermal-neutron flux over the cross section of the inserts was $1.5 \cdot 10^{15}$ - $5 \cdot 10^{14}$ nv, the fast-neutron flux $1 \cdot 10^{15}$ nv and energy release through gamma absorption 100 w/g. The main emphasis was on dimensional stability, density, structural changes, and mechanical properties of beryllium.

It was found that the surface condition depends on the water quality, the total time spent in the water by the beryllium, and the integral irradiation dose. A photograph taken of the inserts during the 1962-1964 period shows extensive pitting regions, while a photograph taken subsequently, when the quality of the medium was improved, shows only individual traces of pitting. An increase in the irradiation dose on the surface of the

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

blocks produces macrocracks in addition to the pitting. No changes were found in the geometric dimensions of the investigated parts even after irradiation with fast neutrons to an integral dose of $(3-4) \cdot 10^{22}$ neutrons/sq cm. The density of the beryllium remained constant in all cases up to doses of $(5-7) \cdot 10^{21}$ neutrons/sq cm. A decrease in density to 1.5 percent was found in individual specimens cut out of blocks irradiated with doses of 10^{22} neutrons/sq cm or more. There is practically no change in the density of hot-extruded beryllium at the above doses. Up to $5 \cdot 10^{21}$ neutrons/sq cm there is no appreciable change in the microstructure of hot-pressed beryllium. At an integrated flux of about 10^{22} neutrons/sq cm there are twins, slip lines, microcracks, and appreciable discrete porosity, primarily along the grain boundaries. Higher doses result in fur-

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

ther porosity development and the spread of microcracks over the grain boundaries, as well as the grains themselves. No appreciable changes are found in the microstructure of hot-extruded beryllium irradiated with an integrated flux of up to $1.5 \cdot 10^{22}$ neutrons/sq cm; there are no microcracks. There is a sharp increase in microhardness up to an integrated flux of $(3-5) \cdot 10^{21}$ neutrons/sq cm. The compression strength remains practically unchanged up to a dose of $(3-5) \cdot 10^{21}$ neutrons/sq cm, but declines with a higher dose. Yield point is unchanged up to 10^{20} neutrons/sq cm, but rises with a higher dose. The influence of the build-up of helium and tritium products is considered.

The results indicate that the permissible irradiation dose for beryllium parts which carry no external mechanical loads is an integrated fast-neutron flux of $2 \cdot 10^{22}$ neutrons/sq cm.

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USSR

UDC 681.3.06:51

KLINENKO, Yu. V., UTROBIN, I. S.

"Automatic Output of Information to a Graph"

Uch. zap. Perm. Un-t [Scientific Writings of Perm' University], No 220, 1970, pp 182-186, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V621 by I. Brodskaya).

Translation: It is suggested that a standard EPP-09 strip chart recorder be used to output information from the "Aragats" machine to a graph. The information output from the machine register through a corresponding circuit is fed to a code-voltage convertor. The output of the convertor carries a voltage which moves the carriage of the strip chart recorder. Graph output is not simultaneous with machine operation. An m-point strip chart recorder allows up to m curves, corrected to a single argument to be output simultaneously. Graph output is 20 times slower than printer output.

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--USE OF ADSORPTION REFINING FOR INCREASING THE STABILITY OF
HYDROCRACKING DISTILLATES -U-
AUTHOR--(03)-KLIMENOK, B.V., STEKHUN, A.I., SKLYAR, I.M.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(3), 59-64
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PROPULSION AND FUELS
TOPIC TAGS--THERMAL STABILITY, DIESEL FUEL, PETROLEUM REFINING, PETROLEUM
HYDROCRACKING

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/2082 STEP NO--UR/0152/70/013/003/0059/0064
CIRC ACCESSION NO--AP0127455
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIESEL OIL FRACTION, B. 180-350DEGREES, OBTAINED FROM A HYDROCRACKED DEASPHALTATE, HAD HIGH CONTENT OF N COMPOS., A HIGH ACIDITY AND IODINE NO., A DARK COLOR, AND LOW STABILITY COMPARED WITH STD. FUEL. AFTER REFINING IT WITH SYNTHETIC SPHERICAL AND CRUMBED AL SILICATE AS ADSORBENT AT 80 AND 50DEGREES, RESP., A STABLE COMPONENT FOR DIESEL FUEL WAS OBTAINED. THE EFFECT WAS OBTAINED BY ADSORPTION OF THE UNSTABLE RESINOUS MATTER, CONSISTING MAINLY OF HETEROCYCLIC COMPOS. OF N AND S AND THE OXIDN. PRODUCTS OF THEIR UNSTABLE COMPONENTS. ADSORPTION REFINING WAS MORE ADVANTAGEOUS THAN HYDROFINING. THE ADSORBENTS WERE REGENERATED FOR 2 HR AT 550DEGREES. CHARACTERISTICS OF THE PRODUCTS AND EXPTL. DATA ARE PRESENTED. FACILITY: UFIM. NEFT. INST., UFA, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FTOROPLAST, AN ANTIADHESION MATERIAL USED IN DEPARAFFINATION OF
DIESEL FUEL BY AQUEOUS UREA SOLUTIONS -U-
AUTHOR-(02)-ZAGIDULLIN, R.M., KLIMENOK, B.V.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (1), 42
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PROPULSION AND FUELS
TOPIC TAGS--AQUEOUS SOLUTION, UREA, PETROLEUM DEPARAFFINATION, DIESEL
FUEL, FURFURAL, PLASTIC/(U)F4 FTOROPLAST SHEET, (U)F4 FTOROPLAST TUBE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1529 STEP NO--UR/0318/70/000/001/0042/0042
CIRC ACCESSION NO--AP0118516
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118516

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL COLUMNS IN WHICH DIESEL FUEL IS TREATED WITH UREA SOLN. AT 90DEGREES BECOME COVERED WITH GUMMY DEPOSITS. COATING THE WALLS WITH A FURFURAL RESIN DID NOT PRODUCE AN IMPROVEMENT. LINING THE WALLS WITH WOODEN LATHS TO WHICH FTOROPLAST F-4 SHEETS WERE NAILED, AND REPLACING THE STEEL PIPING WITH FTOROPLAST F-4 TUBES, GAVE SATISFACTORY PERFORMANCE FOR 2 YEARS.

UNCLASSIFIED

USSR

UDC: 621.396.69:621.316.8(088.8)

BABANOVA, O. R., KLIMENSKAYA, D. N., LEPIK, I. P.

"A Method of Making Wirewound Resistors"

USSR Author's Certificate No 262226, filed 20 Sep 68, published 20 May 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V342 P)

Translation: This method of making wirewound resistors up to 1 mm in diameter involves applying resistive material to the base of the resistor. As a distinguishing feature of the patent, resistors with a given rating and low scatter of parameters are produced by using a twisted glass thread made up of thin fibers and impregnated with resistive material as the vaporizer and batcher. This thread is placed immediately beneath the resistor base and transported together with the base through a heated oven.

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1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--DISORDERS IN THE ACTIVITY OF THE PANCREAS DURING CHRONIC GASTRITIS
IN CHILDREN -U-
AUTHOR--(02)-SHAMSIYEV, S.SH., KLIMENSKAYA, L.V.
COUNTRY OF INFO--USSR
SOURCE--PEDIATRIYA 49(2): 64-76. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--STOMACH, DIGESTIVE SYSTEM DISEASE, PANCREAS, PEDIATRICS,
SECRETION, ENZYME
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0339 STEP NO--UR/0546/70/049/002/0064/0067
CIRC ACCESSION NO--AP0135832

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135832

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF CLINICO LABORATORY DATA AND FUNCTIONAL STUDY OF THE PANCREAS ALLOW A CONCLUSION TO BE MADE THAT IN CHRONIC GASTRITIS (DURING DECOMPENSATION) ALMOST IN ONE HALF OF THE CHILDREN THERE OCCURRED DISORDERS OF THE EXCRETORY FUNCTION OF THE PANCREAS. IN MOST OF THE CASES DISSOCIATION IN THE SECRETION OF ENZYMES OF THE DUODENAL CONTENT WAS OBSERVED, THIS TESTIFYING TO A FUNCTIONAL DISORDER IN THE EXCRETORY FUNCTION OF THE PANCREAS. THE NATURE OF THE MENTIONED CHANGES DIRECTLY DEPENDS UPON THE DURATION, SEVERITY OF THE DISEASE AND EXTENT OF DISORDERS OF THE ACID FORMATION FUNCTION OF THE STOMACH. FACILITY: DEP. CHILD. DIS., TASHKENT MED. INST., TASHKENT, USSR.

UNCLASSIFIED

USSR

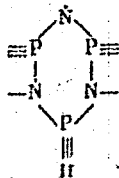
UDC 541.15+539.219

RIIMENTOV, A. S., and MIKHAL'CHENKO, G. A.

"Free Radicals in the Sodium Salt Matrix of Trimetaphosphinic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1 1973, pp 208-209

Abstract: A study was made of the radical products obtained under ^{60}Co γ -radiation in polycrystals of the sodium salt of trimetaphosphinic acid of 77°K and a pressure of 10^{-2} mm. The atomic hydrogen doublet (I) with splitting of about 500e and, probably, the radical (II) with a complex multiplet structure were detected in the salt matrix.



In the irradiated salt samples at 77° K, the number of radicals (I) does not change for hundreds of hours, and on annealing it is detected to a temperature of $\sim 270^\circ$ K. The superthin structure of the electron paramagnetic

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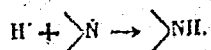
USSR

KLIMENTOV, A. S., MIKHAI'CHENKO, G. A., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 208-109

resonance spectrum of the radical (II) does not change in practice on heating the irradiated salt from 77 to 465° K.

With a dosage of γ -radiation equal to 10^6 rad absorbed by the sample at 77° K, the radiation-chemical yield of the radicals (I) was 0.4 ± 0.2 ; the radicals (II), 1.8 ± 0.6 (radical/100 electron volts).

A decrease in the (II) radical content in the 250-300° K temperature range was discovered caused probably by the reaction by the scheme



In these experiments, free H \cdot free radicals were detected for the first time in the long-lived state at such high temperatures (to $\sim 250^{\circ}$ K).

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Soviet Inventions Illustrated, Section ~~K~~ II Electrical, Derwent,

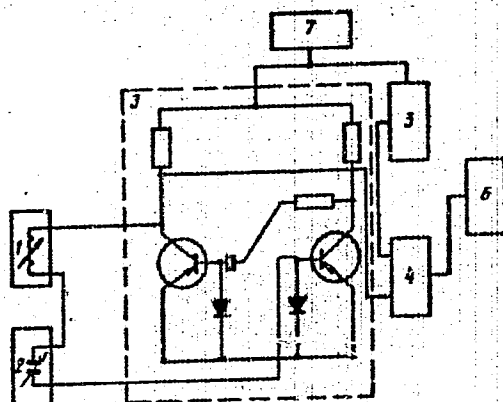
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241723 FLUID MASS FLOW MEASUREMENT for use in the chemical and oil processing industry requires an inductive flow rate pick-up (1) in series with a capacitive density pick-up (2), and an LC-multi-vibrator (3) which extracts the square root of the product of these two variables. Mixer (4) produces the difference between the frequency output and a reference frequency from oscillator (5) which is proportional to the mass flow and is passed to a pulse counter (6).

27.5.67 as 1160916/18-10. YU. I. VINOGRADOV & G. V. KLIMENTOV. PRODUCTION IND. INST. (10.9.69) Jul 14/18.4.69. Class 42d. Int. Cl. G Old.

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Gosudarstvennyy Institut po Proektirovaniyu i Issledovatel'skim Rabotam v
Neftedobyvayushchey Promyshlennosti



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